

Rule 126^{1/2}

The filtration media array of claim 1 wherein the contoured film layer is electrostaticly charged.

2. ~~3~~. The filtration media array of claim 2 wherein the filtration media array comprises at least two flow channel layers.

3. ~~4~~. The filtration media array of claim 2 wherein the second layer is a cap layer.

4. ~~5~~. The filtration media array of claim 4 wherein the cap layer is a planar film layer forming the flow channels with the contoured film layer and which flow channels extend across the entire contoured film layer forming the fluid pathways.

5. ~~6~~. The filtration media array of claim 5 wherein the cap layer is in engagement with all the peaks or ridges on one face of the contoured film layer.

6. ~~7~~. The filtration media array of claim 6 wherein the cap layer is heat bonded to the peaks or ridges of the contoured film layer.

7. ~~8~~. The filtration media array of claim 6 wherein the cap layer is adhesively bonded to the peaks or ridges of the contoured film layer.

8. ~~9~~. The filtration media array of claim 2 wherein the second [film] layer is a contoured film layer.

9. ~~10~~. The filtration media array of claim 9 wherein the contoured film layers are attached to at least one cap layer.

10. ~~11~~. The filtration media array of claim 10 wherein the cap layer is a stabilization layer comprising continuous filaments or a strengthened nonwoven.

11. 12. The filtration media array of claim 2 wherein the shape of the flow channels of a flow channel layer are substantially identical.

12. 13. The filtration media array of claim 3 wherein the flow channels of adjacent flow channel layers are substantially aligned.

13. 14. The filtration media array of claim 3 wherein the adjacent layers forming the filtration media array are melt adhered each to the other.

14. 15. The filtration media array of claim 3 wherein the flow channel layers are formed by one face of a contoured film layer and a cap film layer in contact with the peaks or ridges of that face of the contoured film layer.

15. 16. The filtration media array of claim 15 wherein each contoured film layer is bonded to at least one planar cap film layer.

16. 17. The filtration media array of claim 3 wherein at least one functional layer is provided in the filtration media array.

17. 18. The filtration media array of claim 17 wherein the functional layer is a cap layer having a surface treatment.

18. 19. The filtration media array of claim 18 wherein the functional layer comprises a sorbent filtration media.

19. 20. The filtration media array of claim 2 wherein the contoured film layer has high aspect ratio structures on both faces.

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20. 21. The filtration media array of claim 18 wherein the functional layer are pairs of conductive layers associated with adjacent nonconductive layers which conductive layers are connected to a voltage source to create an active electric field across the flow channel layers.

21. 22. The filtration media array of claim 1 wherein the high aspect ratio structures have a ratio of height to smallest diameter or width of greater than 0.1 and a height of at least 20 microns.

22. 23. The filtration media array of claim 2 wherein the high aspect ratio structures have a ratio of height to smallest diameter or width of greater than 0.5 and a height of at least 50 microns.

23. 24. The filtration media array of claim 2 wherein the high aspect ratio structures are in the shape of upstanding projections, ridges, or combinations thereof.

24. 25. The filtration media array of claim 23 wherein the structured film surface area is at least 50 percent higher than a corresponding planar film.

25. 26. The filtration media array of claim 25 wherein the high aspect ratio structures are less than 50 percent of the height of the flow channels

26. 27. The filtration media array of claim 23 wherein the flow channels have structured surface film layers forming from 10 to 100 percent of their surface area.

27. 28. The filtration media array of claim 2 wherein the layers forming the flow channels have a thickness of less than 200 microns

28. 29. The filtration media array of claim 2 wherein the flow channels have an average cross sectional area along their length of at least 1 mm².

29. 30. The filtration media array of claim 29 wherein the flow channels have an average cross sectional area along their length of less than 1cm^2 .

5 30. 31. The filtration media array of claim 30 wherein the minimum cross sectional area of a flow channel is at least 0.2mm^2 .

10 31. 32. The filtration media array of claim 4 wherein the cap layer is a planar film layer forming the flow channels with the contoured film layer and which flow channels of adjacent flow channel layers extend at angles with respect to each other.

15 SUB B' 32. 33. A method of forming a filtration media array comprising the steps of:
(a) forming a contoured film layer;
(b) joining the contoured film layer to a second layer at at least one face of the contoured film layer so as to stabilize the contoured film layer and form flow channels;
(c) electrostatically charging the flow channel layer assembly of the contoured film layer and the second layer.

20 Sub C' 33. 34. The method of forming a filtration media array of claim 33 further comprising layering the flow channel layer assembly so as to create a filtration media array having multiple flow channel layers.

25 Sub D' 34. 35. The method of forming a filtration media array of claim 34 further comprising joining the adjacent flow channel layers by partially melting at least one face of the multilayer flow channel assembly.

SUB B2

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Sub D

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A method of forming a filtration media array comprising the steps of:

- (a) forming a contoured film layer;
- (b) joining the contoured film layer to a second layer at at least one face of the contoured film layer so as to stabilize the contoured film layer and form a series of adjacent flow channels;
- (c) layering the flow channel layer assembly so as to create a filtration media array having multiple flow channel layers forming fluid pathways through the filtration media array;
- (d) slicing the filtration media array with a hot wire so as to fuse the adjacent layers forming the filtration media array.

The method of forming a filtration media array of claim ³⁵36 further comprising separating a portion of the filtration media array sliced by the hot wire.